Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

PURPOSE AS SYSTEMATIC UNITY.

I.

THE present investigation is undertaken for the sake of the light which it may throw on the problem of value. Assuming that value is a function of what may broadly be termed "interest," it becomes imperative to get at the fundamental or generic character of this phenomenon. What is that attitude or act or process which is characteristic of living things, which is unmistakably present in the motor-affective consciousness of man, and which shades away through instinct to the doubtful borderland of tropism? Both the vocabulary and the grammatical structure of language provide for the teleological categories. "Purpose," "means and end," "in order to," "for the sake of," "with a view to"—these and many other kindred forms of speech are evidently applicable to the same context. There is something in our world to which they serve to call attention. What is it?

I propose to view the matter objectively rather than introspectively. What we wish to discover is the nature of the thing, and not the nature of the consciousness of the thing. It is fair, I think, to apply the analogy of mechanism. One would not think of approaching this latter question by an examination of the consciousness of mechanism. Similarly, purpose is supposed to be a kind of happening or chain of events differing in its determination from that of mechanism. It may appear that consciousness is incidental to the purposive kind of determination. But in that case we should begin with the process as a whole and work in. We should not shut ourselves up in advance to the view that purpose takes place only in the introspective stream of consciousness. We cannot, in other words, determine the role of consciousness in purpose unless we first take that view of the matter in which both consciousness and its physical context are taken into account. Behavior or conduct, broadly surveyed in all the dimensions that experience affords, can alone give us the proper perspective. We want if possible to discover what it is to *be* interested, not what it is merely to *feel* interested. What is implied in *being* favorably or unfavorably disposed to anything? It may be that it all comes to nothing more than a peculiar quality or arrangement among the data of introspection, and in that case a structural psychology of feeling, will, desire or ideation will tell the whole story. But such a conclusion would be equivalent to an abandonment of the widespread notion that purposiveness is a kind of determination of events differing from their mechanical determination. The really important claim made in behalf of purpose is the claim that things happen *because* of purpose. Are acts performed *on account* of ends? Is it proper to *explain* what takes place in human or animal life, or in the course of nature at large, by the categories of teleology? The most exhaustive introspective analysis of the motor-affective consciousness would leave this question unanswered, and to confine ourselves to the data which such analysis affords would be to prejudge it unfavorably.

It is, of course, permissible to suppose that even though a case should be made for purpose in a physical or cosmic sense, value should be limited to subjective purpose. But it is evident that the question would then be merely one of terms. If there are objective purposes as well as subjective, it would be necessary to employ some term to designate the objects of both attitudes. It would be important to construe subjective purpose as a species of this broader genus, which would be accomplished best by taking it as a kind of valuing. Furthermore objective or dynamic purpose, if there be such, would be far too important in its bearing on the special value-sciences to warrant our disregarding it in a general theory of value.

II. NEGATIVE MEANINGS.

In looking for a clue to the meaning of dynamic or objective interest, we must free our minds so far as possible from the purely negative associations which the teleological terms have acquired. The case for teleology is prejudiced by a suggestion of anti-scientific bias, or of unscientific laxity. This is due no doubt mainly to the religious or popular auspices under which it has been advanced. The teleological hypothesis is often invoked to satisfy aspirations, to flatter human nature or to conceal ignorance. In the present controversy over vitalism the proofs of purposiveness seem to consist mainly in the indictment of mechanism. Purpose is not recommended on account of its own success, but on account of the failure of something else. When so invoked it means little more than that unknown factor, x, which is needed to complete the explanation of such phenomena as growth or organic equilibrium. It is not surprising that vitalists should be regarded as impatient scientists who cannot wait for a rigorous experimental solution, but must needs invent an agency *ad hoc*; or at best as irresponsible critics who remind plodding science of its outstanding difficulties without assisting in the serious work of overcoming them.

The party of teleology according to this view is a sort of opposition party to the real scientists, who are sobered by being in power. It is the function of this opposition party to challenge and censure, rather than to legislate and administer. It can afford to be careless or premature because it is not in office. For itself it has no policy, but confines itself to impeaching those policies of mechanism, determinism, naturalism and experimentalism which authoritative science is patiently executing. There is doubtless a certain merit in this two-party system in science. But certainly for our constructive purposes there can be no virtue in a conception of purpose as merely not something else. If the conception is to be of any use to us it must have a positive explanatory value of its own.

Nor is it at all necessary to suppose that purpose is the contradictory alternative to some other hypothesis such as mechanism. Purpose must doubtless be *different* from mechanism if it is not to lose its identity altogether; but that it should be incompatible with mechanism, or observed only in its breach, does not follow. Through being thus regarded from the outset as an antithesis to an established and universally credited theory, teleology needlessly makes enemies for itself. There is certainly no reason to suppose in advance that teleology is less compatible with mechanism than statics with dynamics, or the atomic theory with the electro-magnetic theory of light. There is certainly an empirical presumption to the contrary. A man who goes to his journey's end *in order to* keep an engagement, does not appear to violate the law of gravitation in so doing. Let us therefore endeavor to get the positive sense of the teleological type of explanation, and let us say of its compatibility or incompatibility with the mechanical type of explanation, that that is as it may be.

III. PROVISIONAL DEFINITION.

We start with the popular supposition that there is a peculiar and specific mode of explanation, which may certainly be employed in the case of the rational conduct of man, which may probably be applied to lower forms of life, which may for speculative reasons be extended to the cosmos as a whole, and for which the name is "purpose."

1. Let us first consider a case of *human conduct.* An off-hand provisional view of this alleged mode of explanation is afforded by Socrates's famous allusion to Anaxagoras in Plato's "Phædo." Socrates, it will be remembered, distinguishes two ways of explaining his being in prison. On the one hand it is to be explained by reference to his bones and muscles. But this, he thinks, would be an inappropriate explanation; not untrue to be sure, since bones and muscles do supply the necessary "conditions,"—but not the sort of explanation that touches the real cause of a *mind's* acting. The second and preferred explanation is in terms of Socrates's purpose of "enduring any punishment which the law inflicts." A mind, in other words, acts for the best, according to its lights. To explain its action, therefore, it is necessary to discover what it deems best, and then to construe the particular act as an instance of that best. In the present case it is supposed that Socrates is actuated by the general principle of submission to the law, and that he has judged his remaining in prison to be what under the existing circumstances that principle implies.

Let us analyze the situation more carefully. lest we omit any essential factor. In the first place, there must be a general type of action, such as submission to law, of which a particular act, such as remaining in prison, may be regarded as an instance. In the second place, there must be an agent possessed of a stable disposition or tendency to perform acts of a certain class, under varying circumstances. The particular performances will differ according to circumstances, but they must be consistent in some respect. Then, thirdly, there must be some determinate relation between the rule or type of action and the agent's disposition. But what is this determinate relation? The simplest alternative is to suppose that the rule of action is identical with the constant or consistent feature of the disposition. Thus we might suppose that Socrates tended under varying circumstances to submit to the law. But this will not do. For if it should happen that his remaining in prison were as a matter of fact not what the law required; if it should happen that there had been some error in transmitting the commands of the authorities, or if it should turn out upon reflection that Socrates's escape rather than his passively yielding to tyrannical oppression was more in keeping with his constitutional rights, that would not disprove his purpose to submit to law. What is necessary is that Socrates should *mean* to submit to law, or that he should *think* his act to be a case of submitting to the law. The link between the rule and the disposition is an act of interpretation or judgment. In other words, one is said to be governed by a purpose M, when M is some generalized form of action, and when one is disposed consistently to perform what one believes (whether correctly or mistaken) to be a case of M.

2. This, then, appears to be what is meant by purpose when purposiveness is imputed to the rational or reflective procedure of man. Let us now turn to what common sense would regard as a more doubtful case of purpose, the case of *animal behavior*. The differentia of animal behavior which was first remarked, was the power of self-motion. Whereas an inanimate object merely submitted to motion imparted to it from without by impact, a living thing seemed to be an original source of motion. Associated with this phenomenon was the relatively unpredictable character of the action of living organisms. What they did was so far due to internal and unobservable factors that you could not rely on their yielding in any uniform way to the operation of the external forces that you might observe or apply. Living things had a way of moving of

themselves, without any apparent cause which might serve to put you on your guard. Hence they were said to exhibit "spontaneity."

It is still customary to characterize living things in this way. Biologists describe the organism as "an active, self-assertive, living creature—to some extent master of its fate."[1] But this spontaneity or self-motion no longer serves to distinguish living from inanimate things, owing to the development of the science of energy. We should now speak of this apparent spontaneity as a release of stored energy. The organism accumulates chemical energy by the process of metabolism, and then discharges it when subjected to some kind of stimulation from without. When the discharge occurs it is out of all proportion to the stimulation. Indeed in some cases there appears to be no external stimulus at all. In any case the internal factor is so much more important than the external factor that the latter affords no safe basis for prediction. As organisms become more elaborate the discharge comes to depend more and more upon the quantity and balance of its stored energies and less and less upon what is done to it from without. But even so this phenomenon of release or discharge does not differ in principle from what happens in the case of combustion or in the case of the action of high explosives. If the behavior of living things is spontaneous in this sense, there is also "spontaneous combustion" in the same sense. In the one case as in the other we now suppose that the action would be predictable even with the utmost quantitative precision if we knew the internal organization of the acting body, as well as the character and intensity of the stimulus. It is merely a question of the relative preponderance of central over peripheral factors.

Hence we are at present inclined to look elsewhere for the differentia of life, and to find it, not in the spontaneity of action, but in its direction *toward* something. The explosion, we say, is blind and aimless,—indifferent to consequences; whereas life is circumspect and prophetic. Forewarned is forearmed. This is what we mean when we speak of living things as exhibiting intelligence. We do not credit all living things with intelligence; but we have no hesitation in imputing it to the higher forms of animal life, and the phenomena of instinct and tropism have led to our imputing at least a quasi-intelligence to the lower animals and even to plants.

---

[1] Thomson, *Heredity*, p. 172.

In so far as we impute intelligence to living things, we feel the need of explaining their action in a peculiar way. The explosion is satisfactorily accounted for as a resultant of two physically existing factors, the internal organization of stored energies and the external spark or trigger. But in the case of intelligence it seems necessary or at least appropriate to refer to the sequel, to that which is merely in prospect at the moment when the action occurs. Thus a dog moves rapidly away, or gets behind some intervening obstacle, when his master takes down the whip. In so far as this implies intelligence we think of it not in terms merely of existing chemical energy and the light impinging on the optic nerve. We take account also of what is going to happen, namely the painful beating. We say that that also explains why the animal is acting as he does. Or we say that the animal is acting "in order to avoid" the beating. But since the beating which is avoided does not as a matter of fact occur, we are thus appealing to a factor which is in some sense merely possible or hypothetical. Over and above the animal's power of spontaneous motion, over and above the external action of the stimulus, there is some additional factor which refers to this mere possibility and which decisively determines the direction which the discharge takes. I do not mean to assert that this third factor cannot be traced to the previous experiences of the animal. Probably it can; and this has led comparative psychologists to associate intelligence with docility, or the capacity to "learn by experience." But that is not the point. However he may have come by it, the animal is supposed at the moment of action to possess a capacity for prospectively determined action. He acts not because of what is or has been merely, but because of what *may be* by virtue of his action, or what *would be* without his action. He acts, we say, from fear of a painful whipping, or from hope of immunity. There is no way of describing either the fear or the hope, without admitting it to be the fear or the hope *of something,* which something is not upon the plane of past or present physical existence as ordinarily conceived.

If, now, we put together the results of the analysis of our two examples we shall have a provisional view of interested or purposive action. In both cases there is an organism with certain accumulated energies and certain organized propensities. In both cases there is a specific external situation which acts upon the organism and liberates the energies and propensities. So far there is nothing to distinguish these cases from such physico-chemical analogies as I have cited. But in both cases there is a third and differential factor which constitutes their purposive aspect. The act is construed by the agent in terms of something ulterior and non-existential. Socrates judges his act to be of the general type of submission to law; to the dog the whip is a sign of beating or pain-to-come, and his flight is a response "as to" pain. In both cases the agent views the situation whether by inference or association, in the light of some aspect or relation that transcends given fact; and his acting as he does is determined by his viewing it as he does.

Jennings has termed this characteristic of behavior "reaction to representative stimuli." "The sea urchin. . . ."

responds to a sudden shadow falling upon it by pointing its spines in the direction from which the shadow comes. This action is defensive, serving to protect it from enemies that in approaching may have cast the shadow. The reaction is produced by the shadow, but it *refers,* in its biological value, to something behind the shadow.

"In all these cases the reaction to the change cannot be considered due to any direct injurious or beneficial effect of the actual change itself. The actual change merely *represents* a possible change behind it, which *is* injurious or beneficial. The organism reacts as if to something else than the change actually occurring. The change has the function of a *sign.* We may appropriately call stimuli of this sort *representative* stimuli."[2]

The same general principle applies to the higher organism, Socrates. That which releases his action is a representation. His friends come to his prison and urge him to escape. Their actions and words are a sign to him of law-breaking and *as such* he resists them; or his presence in prison represents to him submission to law, and as representing that, he holds to it. Let us now refine this notion of interest or purpose by comparing it with other notions which approximate it, but in some respect fall short of it or depart from it.

IV. THE PATHETIC FALLACY.

The most familiar error regarding purpose is the so-called "pathetic fallacy." It will be worth our while to inquire just wherein the fallacy lies. Suppose that in spite of my most painstaking efforts to execute a powerful stroke, the golf ball rolls ingloriously from the tee. I then turn and rend my new driver or call down maledictions upon it. I am angry not with myself but with it. I feel resentment toward it precisely as though it had meant to spite me. I virtually attribute malice to it. Now this, as my less heated partner may remind me, is unreasonable, because the golf stick really didn't mean it or do it "on purpose." It is true that in effect the stick thwarts me. The stick is a cause of my displeasure. But the error consists in imputing that displeasure to it as a motive or ground for its action. In other words, it is not sufficient for purposive action that its effect should occasion displeasure; it is necessary that this displeasure as a prospective contingency should determine the act. Or take another example. Basking in its warmth, I praise the sun and feel gratefully disposed to it. If I knew what the sun liked I would gladly reciprocate. This is an innocent error, a kind of poetic license, but error it is none the less. For I have responded to the sun as though the pleasure which its rays were about to give me had actuated the sun in shedding them; whereas this effect upon my sensibilities is accidental and in no way needed in order to account for the radiation of the sun's light and heat.

---

[2] H. S. Jennings, *Behavior of the Lower Organisms,* p. 297.

But there is also a positive implication in this criticism. My own action in each case *is* purposive. My addressing the ball, or lying in the sun, is to be accounted for by reference to the stroke or the bodily comfort that is to come. My error lies not in employing such a mode of explanation but in misapplying it. There is a human weakness, doubtless one of the major motives in religion, which prompts one to extend to all the agencies involved in any event that purposive type of determination which really holds only of one's own participation in it. In the case of one's own agency the prospective sequel does account for the act, but in the case of the other contributory agencies this explanation is out of place; or, some but not all antecedent agencies are determined by the sequel. Not to discriminate is to commit the inverse of a common fallacy.

It would not be inappropriate to term this characteristic teleological error the fallacy of "*ante hoc ergo propter hoc.*"

There is a further point which this error brings to light. In so far as I like it the sun's warming my body is good. The effect of the sun's action is therefore good; and it might even be that the sun "tended" to warm my body and so to do good. But that is evidently not sufficient to make the sun's action purposive. Action resulting in, or tending to, good is not *ipso facto* purposive action. It would be purposive only provided that result were somehow *accountable* for the action. In other words we are forced to recognize the essentially dynamic character of purpose. It is not the quality of the results, whether good, bad or indifferent, that implies the purposiveness of its antecedents, but the function of that result as somehow participating in the *determination* of the process.

V. PURPOSE AND SYSTEMATIC UNITY.

1. Among the widely accepted notions of purpose or interest which we shall find it profitable to examine, the next is that which identifies purpose with *systematic unity*. This notion is distinguished by the fact that it disregards the time factor, or regards it as accidental. Purpose of this sort may characterize the world *sub specie eternitatis*. It may qualify a static whole, and appear in its mere structure or arrangement, regardless of its origin or history. It follows that the purposiveness of any given reality may be judged by internal evidence, even when it is supposed that the reality in question was produced by conscious design. A purposive object is believed, like Paley's watch, to exhibit its "designedness" in its very form. This formal, static purposiveness is identified with order, system,—the interrelation of parts in a whole. Let us first consider examples, beginning with an example in which the time factor is clearly eliminated.

An ellipse is more than a mere collection of individual points; it is a curve having a distinctive character as a whole, which may be expressed by the equation $x + y = c$. Every individual point in the curve is a value of the variables in this equation, and its position is determined according to the law by the position of the other points. Although the position of each point differs from that of every other point, there is at the same time a certain identical character among them all, namely the "$x + y$" character, or the sum of the distances from two fixed points called the "foci." To call this a unified whole means that there is a definite whole-character in terms of which all of the constituents can be described. This whole-character is the law of the parts, prescribes their positions, or, as it is sometimes expressed, "generates" them. In the case of a broken line or a curve having no equation, there is no whole-character except the merely collective aspect of the several points. In that case the parts are prior to the whole, and to speak of them as parts of the whole is therefore circular or redundant. But in the case of the ellipse the whole is prior to the parts, or comes first in the order of explanation. The parts, therefore, are said to be governed by something ulterior to them. The ellipse does not exist except in so far as all the points are in their proper positions, and yet their being so disposed is determined by the nature of the ellipse. The ellipse is then said to be the purpose which regulates the several points. Each point is determined by what is necessary in order that there shall be an ellipse.

Let us now turn to examples in which time figures as one of the internal factors of a unified whole. The whole is not in time, but time is in the whole. First let us take an example of what is commonly regarded as mechanism. Suppose a body to be moving in a straight line at a uniform velocity, governed by the law of inertia. Although each successive position of the body is new, a certain ratio of its distance-interval and its time-interval measured from any previous position is always the same. Its kinematic history as a whole exhibits a definite character which prescribes what its position must be at each particular moment. It may in its actual behavior be construed as a realization of the principle of uniform velocity. This principle in itself is a universal or ideal entity. It does not exist except in and through the successive positions of a moving body which obeys it. And yet these positions are themselves somehow determined by it.

Let us take one more example, one that is less precise but is drawn from the context of life. Modern civilization may be said to possess a characteristic flavor, which distinguishes it as a form of life. It is conditioned by the co-presence and cooperation of a thousand factors, such as the present phase of geological evolution, temperate climate, fertility of soil, racial blend, cultural tradition etc. But these many factors *compose* something. There is a unique and simple quality which somehow supervenes when all these factors are aggregated,—a quality which is identical with none of them and yet somehow takes them all up into itself. In terms of this one quality we can construe all the various conditions as contributing this or that to it. Through it they become, not so many miscellaneous particulars, but various aspects or phases of one thing. This resultant quality, or *Gestaltsqualität,* is their purpose by reference to which they are now seen to be *for* something. They may now be understood not merely severally but collectively. There is a reason why they should be together; or, over and above that determination which accounts for each by itself, there is a determination which accounts for each in its relation to the others. But this determination springs somehow from a character which does not come into existence until after they are all in place.

These examples serve to give plausibility to the notion that is now before us. Let us analyze them more carefully. It will be found, I believe, that the notion of unity which they illustrate is divisible into two types, which I shall call "ideal" and "existential" unity. The first is based on the conception of a universal. A universal unifies its instances. Furthermore it has this peculiar relation to any instance of itself: it explains the instance, or serves as a description of it, and in that sense appears to be prior to it; but on the other hand it exists, or is exemplified only through the instance, and in that sense appears to be posterior to it. So that a case of a universal seems to be something that *is* only through itself. Interrelation is an example of ideal unity. When a number of terms possess a mutual relation exclusively, that is, when they are related among themselves as none of them is related to any term without, they compose a whole. Or they may all sustain a common relation to a term outside the group. Or they may be instances of the same set of universals where the universals are themselves interrelated.

The second, or existential, type of unity consists of the convergence or fusion of many existences into one. The unity lies not in any universal or set of universals under which many particulars may be subsumed, but in an ulterior particular. Whereas unity of the first type is intelligible or apprehended by reason, unity of this second type is sensible or is a matter of empirical fact. The several particulars work together to produce a singular result, or blend into an individuality that is directly felt. Let us inquire, then, whether either of these conceptions of unity, that of universality or that of individuality, will serve as a definition of purpose.

2. It is to be noted at the outset that purpose would be an all-pervasive feature of the world we live in. Instead of its being the exception it would be the rule. Instead of

its being a residual aspect of the world, complementary to that aspect with which the physical sciences have to do, it would coincide with that orderly and law-abiding aspect of nature of which physical science has been the principal exponent. Instead of its being the antithesis to mechanism, mechanism would itself supply the most perfect instances of it. This will doubtless serve to recommend it in the judgment of those who have a predilection for teleological monism. But such philosophers cannot escape the price of their easy speculative victory. For in so far as a conception is universal it is relatively colorless. To characterize the world as purposive in this general formal sense is to say nothing more than every scientist or materialist asserts. It does not differ from saying that it is determined and intelligible in terms of laws. Democritus and Spinoza would then be as good teleologists as Plato or Leibniz. And quite apart from its philosophical barrenness such a view would be wholly inept for the purpose of a theory of value. It would wholly disregard the peculiar or differential feature of those phenomena which biology, economics, ethics and esthetics study, and would be of no service whatever in distinguishing and coordinating these sciences. Although this pragmatic objection might be thought to justify our dismissing it, it will be instructive to discover if possible just wherein this view fails to agree with our provisional conception.

3. Unity may be thought to *constitute* purpose, or to imply a purposive origin. In other words the purpose in question may be thought of as internal to the system, or as external. When intelligible or ideal unity is thought of as itself constituting purposiveness it is evident that the common view from which the teleological terms get their initial meaning, is virtually abandoned. Consider first the simple relation of a universal to its instance. A certain given curve is, let us say, an ellipse. The universal ellipse gives

the curve its character, or serves as a description of it; while on the other hand the curve gives existence or embodiment to the general nature ellipse. There is no paradox here provided we distinguish the sort of status which a universal enjoys from the status of existence. There is a peculiar relation between a universal and its instance whereby the first qualifies the second and the second realizes the first. Now it means nothing to say that the curve exists *in order to* realize the ellipse. It simply *does* realize the ellipse. The ideal nature of the ellipse explains *what* the curve is; but it does not explain the fact *that* the curve exists. Compare the case of Socrates cited above. The purposiveness of Socrates's act lay not in the fact that it was an instance of submission to law, but in the fact that its being such in some sense accounted for its occurrence. We express this by saying that Socrates performed the act because he deemed it such. In other words, the particular case of being submissive to law which in fact ensued was a condition of its own occurrence, through being referred to as a hypothetical possibility by the mind of Socrates. To construe the curve similarly it would be necessary to impute to the curve as determining its existence some reference to the possibility of its being an ellipse; which would imply a complexity of determination for which there is here no justification.

In the case of existential unity or individuality, it is admitted that a variety does possess a unitary aspect, but it cannot be said that any term of the manifold exists *for the sake of* that unity. The peculiar flavor which supervenes upon an assemblage of historical conditions is not necessarily accountable for any of them. It is not necessary to suppose that the conditions were in any sense determined by their composing a unity. This would be the case only provided among the determining factors of each condition there were one which referred to the composite sequel;

which might, of course, be the case, but could not be argued merely from the fact of the supervening unity.

The situation is not altered if we suppose any degree or any combination of these types of systematic unity. If nature throughout observes the law of gravitation, or that of the conservation of energy, so that every bodily event is an instance of the same set of interrelated universals—if it be possible to describe everything in nature by one formula, this would not in the least imply that nature exists for the sake of realizing the formula. If the world as a whole should possess a simple flavor or quality to which every existence and every event contributed an indispensable condition, this would not in the least imply that such a cosmic *quale* determined its conditions. In short mere unity as such, whether it be a conceptual unity or a perceptual unity, does not constitute purpose. This does not prove that purpose does not involve unity, but only that its differentia must lie in something else.

4. But it may still be supposed that unity argues an *external agency* of a purposive sort, that unity is a *product* of purpose. In the first place, it is to be observed that unity furnishes an almost irresistible opportunity for the pathetic fallacy. There is a strong human interest in unity, an intellectual and practical interest in ideal unity, and an esthetic interest in existential unity. When nature is found to obey relatively simple laws, and so to be predictable and workable, the mind rejoices and praises God. When sky and sea and land compose a pleasing landscape, or when a thousand different conditions conspire to bring about the existence of fuel or food, one feels instinctively grateful. And so strong is the instinct that it creates its own object. But we may dismiss this impulse as an amiable weakness. We have already seen that the fact that a state of things is an object of interest, is no proof that that state of things is owing to interest.

A second argument for the purposive origin of unity is the argument from analogy, the argument that Paley employed in the case of the watch. A thing of the type which man makes on purpose is presumably made on purpose, if not by man then by God. There is a curious paradox connected with this argument. Man is peculiarly addicted to making machines, or things which work uniformly and automatically. That being the case those parts of nature which argue a purposive creation ought to be those parts which are most mechanical, such as the periodic motions of the stars, or the conservation of energy. A living organism differs from the typical human artefact just in so far as it is spontaneous and unpredictable; and ought therefore to be the last thing to be attributed to a creative will. As a matter of fact, however, the mechanical parts of nature are the originals of which human artefacts are adaptations and imitations. Machines are made after the analogy of nature, and their machine-like character is due to what they borrow from its independent and self-sufficient forces. Invention does, it is true, correlate these forces in new ways; but there is nothing in the principle of correlation that is new. One could not look for a prettier correlation of forces than that between the centrifugal and centripetal forces of a planet moving in an elliptical orbit. The fact is that man can contrive for his own ends physical systems which resemble those which he finds in nature. The remarkable or unaccountable thing is not that systematic unity should appear in the absence of purpose, but that purpose should have anything to do with it at all. The original mechanisms of nature are relatively intelligible, and human artefacts relatively doubtful and obscure. Purposive origination is not to be invoked as a helpful hypothesis to account for a mystery; it is itself the mystery which the mechanical laws of nature will presumably help to solve.

If the argument from analogy is to be employed at all, there is more justification for arguing from the case of nature to that of human conduct than for arguing in the reverse direction. If the hypothesis of purpose is needed at all, it is needed to explain not the existence of systematic unity in the world, but the peculiar case of human conduct or animal behavior.

Nor is the case for the argument from analogy strengthened if the emphasis is put on the aspect of utility. A systematic unity which serves human needs does not require an explanation which refers to these needs. The periodic motions of the earth evidently provide the heat and light and intervals of rest without which human life would be impossible. Their utility exceeds that of any man-made agency. But to suppose that they have come about for the sake of this, is simply to lapse into that pathetic fallacy which we have already dismissed.

5. There is one further argument from unity which deserves consideration, the argument, namely which employs the notion of *probability*. It is argued that in proportion as a coincidence is *remarkable* it must have been designed. Thus, for example, Professor Henderson has shown that the physico-chemical constitution of the natural world is uniquely favorable to life. It constitutes a maximum of fitness.

"The fitness of the environment results from characteristics which constitute a series of maxima — unique or nearly unique properties of water, carbonic acid, the compounds of carbon, hydrogen, and oxygen and the ocean— so numerous, so varied, so nearly complete among all things which are concerned in the problem that together they form certainly the greatest possible fitness. No other environment consisting of primary constituents made up of other known elements, or lacking water and carbonic acid, could possess a like number of fit characteristics or such highly fit characteristics, or in any manner such great fitness to promote complexity, durability, and active metabolism in the organic mechanism which we call life."[3]

The author then goes on to argue that "there is not one chance in millions of millions" that all these properties should simultaneously occur, and that they should be thus uniquely favorable to life, unless we assume some general law that determines them so to be.

Now, in the first place, this appears to be a misuse of the principle of probability. It is not proper to infer a law from a single simultaneity, but only from a succession of simultaneities. If the first throw of a pair of dice happens to be a double-six, that does not prove that the dice are loaded, in spite of the fact that the chances were thirty-six to one against that particular combination. There would be ground for suspecting a partiality for double-sixes only provided in the long run this combination turned up more frequently than once in thirty-six times. The general or original physico-chemical composition of the cosmos is like a single throw of dice; the chances are heavily against it, but this proves nothing as to any determining principle over and above chance. It would be possible to make such an inference only provided it were possible to gather in the cosmic elements and throw them again. It makes no difference whatever how heavy the odds are against any particular combination, provided there is only one instance of the combination; for it is entirely in keeping with a combination's unusual or remarkable character that it should occur first. In other words, the principle of chance has to do with the frequency of a combination and not with its place in the series. Where the range of alternatives is large the first combination will always be highly improbable; but this fact follows from the principle of chance, and cannot create a presumption against chance.[4]

---

[3] L. J. Henderson, *The Fitness of the Environment*, p. 272.

The same reasoning holds of the "fitness" of the environment for life. Let us suppose life to be a constant. It will then be comparable to a die having the same number on all of its faces. The environment, on the other hand, has millions of faces only one of which matches the first die. That the two should match in any single instance is highly improbable; the chances are millions to one against it. But if it should happen that there was only one trial, its happening to be successful would prove nothing as to there being anything more than chance at work. Professor Henderson insists that the relation of fitness between life and its environment is reciprocal; but he appears to ignore this essential fact, that it is the environment which is given once and for all, while the die of life is thrown again and again. It may be argued that life agrees with its environment too often to permit one to suppose that on the part of life it is a matter of chance. But nothing of the sort can be inferred on the part of the cosmic environment because that lies unchanged upon the board. The relation of matching where one term is cast once and the other repeatedly is not a reciprocal relation. If the matching is uniformly successful, it may prove that the matcher is not trusting to chance, but it proves nothing as to the matched.

Suppose that we vary the illustration. It is a remarkable fact that a given individual likes the world just as he finds it. The world agrees with his taste. In view of the vast range of possibilities, the countless worlds that would offend him, this is prodigiously improbable. But it does not follow that the world is determined to please him.

---

[4] Bosanquet makes this clear when he says: "We have very small ground for being surprised at the actual occurrence of that alternative which had fewest chances in its favor; and absolutely none for being surprised at the occurrence of a marked or interesting alternative which has against it enormous odds." (*Logic,* second edition, Vol. I, p. 342.)

That would follow only provided the world came up again and again according to his taste. But, unfortunately for the argument, the world does not come up again and again, but only once. Suppose, on the other hand, that sentient beings come up again and again always liking the given world. This, then, *would* argue that the taste of sentient creatures was somehow determined with reference to their environment, and did not originate independently of it.

Even this would not prove purpose. Suppose all the impressions on a given area of sand to correspond exactly and uniquely to the feet of a certain child that is at play in the neighborhood. This would presumably not be an accident; but would be accepted as evidence that one of the terms of the fitness relation, namely the feet of the child, was the cause of the other, namely the impressions on the sand. It would be necessary, however, to distinguish this case from the relation between the same child's feet and the shoes in his closet. There is fitness in both cases; and in both cases the fitness is determined, not accidental. But in the latter case alone would one say that the fitness was due to purpose. One would not argue the purposiveness from the bare relation of fitness, or from the non-accidental character of the fitness, but from the peculiar way in which the fitness was in this case determined. The shoes in the closet are of a certain shape because of being judged or expected to fit their owner. And this might still be the case even though they should as a matter of fact fit very poorly.

6. We conclude, then, that purpose in the provisional sense adopted at the outset, cannot be said to consist in the structural unity of any system taken as a whole; nor can it be inferred from such a unity, as necessary to account for its uniqueness, maximal character, aptness or any other peculiarity. The same condition of unity might or might not have been due to purpose. It is necessary in each case

to observe the actual course of its coming into existence. In other words, purpose is not to be defined in general formal terms, any more than chemical reaction. It is not the same thing as determinateness or law in general. If there be such a thing, it consists in a particular sort of agency that appears in some cases of determination and not in others. We dissent, then, from the view that purpose is exhibited in all cases of system and unity; being exhibited most unmistakably in those realms of nature that science has already set in order, and more doubtfully, therefore, in the phenomena of life.[5] We agree with those who find purpose to be a peculiarity attaching to some parts of the existent world, most unmistakably to the behavior of man; purpose in the inorganic world being a doubtful extension of a conception derived from the datum of life.

RALPH BARTON PERRY.

HARVARD UNIVERSITY.

---

[5] I understand that this latter is the view to which "objective" idealists incline, as illustrated by the case of Bosanquet. Cf. his "Meaning of Teleology," *Proceedings of the British Academy*, Vol. II: "The foundations of teleology in the universe are far too deeply laid to be accounted for by, still less restricted to, the intervention of finite consciousness. Everything goes to show that such consciousness should not be regarded as the source of teleology, but as itself a manifestation, falling within wider manifestations, of the immanent individuality of the real. It is not teleological because, as a finite subject of desire and volition, it is 'purposive.' It is what we call 'purposive' because reality is individual and teleological, and manifests this character partly in finite intelligence, partly in appearances of a far greater range and scope" (pp. 8-9). This "individuality of the real" which manifests itself in the larger cosmic and historical processes, where we cannot suppose it to be designed or commanded by any finite mind, would appear to consist in systematic unity of the sorts which we have defined.